HANDBOOK
on
HEALTH & WELFARE
in
PLANTATIONS

Based on a South India Experience

THE UNITED PLANTERS' ASSOCIATION OF SOUTHERN INDIA

Comprehensive Labour Welfare Scheme

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P R E F A C E

It is now more than fifteen years since the United Planters' Association of Southern India launched its Comprehensive Labour Welfare Scheme. What started as a family planning programme has, through a process of experimentation, been extended to cover the whole gamut of health and welfare among plantation workers. Although the concepts developed are beamed to plantation managements in South India, they could, with marginal changes, be applicable wherever an employer-employee relationship exists. The objective of this publication is to codify and consolidate these strategies and to give them wider coverage.

Significantly, the UPASI's efforts do not substitute or duplicate the statutory requirements. Being a supplementary input, they begin where the law ends and endeavour, albeit in a small way, to haul the plantation sector towards the national goal in family welfare planning. In a wider context, they also serve to implement the UN declaration of "Health for all by 2000 AD".

This is evident from the outcome of the scheme as detailed in the following chapters as also summarised in the statement accompanying this preface. Briefly, birth rates in the project estates dropped from 42 per 1000 population in 1971 to 21 in 1985 and infant mortality from 119 per 1000 live births to 48, whereas contraception rates increased from 10 per cent of eligible couples to as much as 50 per cent. Sex preference among parents has waned, deliveries have been institutionalised, nutrition standards of children have jumped, awareness on environmental hygiene has become marked and, more importantly, medical officers have assumed the role of managers of health.

The UPASI would be greatly encouraged if the concepts documented in this publication were to reach a wide segment of the agricultural and plantation community in the Third World.

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PRIMARY INDICES

POPULATION

Total population covered:	1971	..	5,439
	1985	..	2,27,366

CRECHES

Utilisation:	1973	..	10% of vulnerable
	1985	..	75% of population
No.of attendants:	1973	..	400
	1985	..	940
Literacy level of creche attendants :	1973	..	90% Illiterate
			10% Primary School
	1985	..	60% High School
			28% Secondary School

INDICES

Crude Birth Rate :	1971	..	41.6/1000 population
	1985	..	21.0/1000 population
Crude Death Rate :	1971	..	9.4/1000 population
	1985	..	2.4/1000 population
Infant Mortality Rate :	1971	..	119/1000 live births
	1985	..	47.6/1000 live births
Contraception Rate :	1971	..	9.5% of eligible couples
	1985	..	49.5% of eligible couples

MATERNAL CARE

Ante-natal Care :	1973	..	27%
	1985	..	98%
Tetanus Toxoid for pregnant women :	1973	..	Nil
	1985	..	98%
Instituttional Deliveries:	1973	..	42%
	1985	..	80%
Birth weight of child :	1971	..	2.2 Kgs.
	1985	..	3.0 Kgs.

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CHILD WELFARE

Primary Immunisation :	1973 ..	Primary DPT	30%
		BCG	Nil
		Polio	Nil
		Measles	Nil
		Booster	Nil
	1985 ..	Primary DPT	98%
		BCG	55%
		Polio	85%
		Measles	90%
		Booster	65%
Diphtheria + Tetanus for children(5-11 years) :	1971 ..		Nil
	1985 ..		85%
Vitamin 'A' Concentration (1-11 years) :	1971 ..		2%
	1985 ..		90%
No.of children on "Road to Health Card" :	1973 ..		Nil
	1985 ..		35,000

WATER SUPPLY & SANITATION

Chlorination of drinking water :	1973 ..	Nil
	1985 ..	85%
Diarrhoea as a cause of death among infants :	1973 ..	50%
	1985 ..	5%

TRAINING PROGRAMME

Trained personnel for creches :	1973 ..	Nil
	1985 ..	630
No.of para-medical staff trained todate :	1986 ..	600
No.of medical officers, managers trained todate:	1986 ..	100

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I. HEALTH SYSTEM

Historically, plantations throughout the world have suffered from lack of adequate medical cover. For instance, the incidence of malaria has been rampant. In India, the need for developing rudimentary medical services to cater to the specific requirements of the plantation population was initially embodied in the Bhore Committee Report and the Technical Report of Lloyd Jones both of which were released in 1947. The former laid stress on providing services at the periphery, as close to the workers as possible. While a national policy on health care could not be enunciated and implemented in the years immediately following Independence, sectoral areas such as plantations received priority consideration and the enactment of the Plantations Labour Act in 1951 was a step in that direction. The provisions of this Act are dealt with in detail elsewhere in the document.

It is important to recognise that health denotes not merely the absence of disease, but the state of physical, mental and social well-being of the person. In spite of the vastly improved infrastructure over the years in terms of dispensaries and hospitals in plantations, the problems of sub-nutrition, diarrhoea, dysentry, respiratory infection, worm infestation and anaemia continue to take a heavy toll on the community.

In the plantation setting, which invariably involves an employer-employee relationship, the participants in the health care system - both preventive and curative - can be classified under the following 3 categories :

MANAGEMENT as providers of SERVICES
HEALTH PERSONNEL as providers of SKILLS
WORKERS and their DEPENDANTS as CONSUMERS

The primary function of the management is to comply with the health provisions as required by law. Additionally, it would be desirable to integrate certain non-statutory measures in an effort to impart health standards to workers at optimum levels. As the providers of skills, the health personnel have a dual role in that apart from being the implementing agency for health services, they are required to meet the demands of the consuming worker community and also create an environment for a high level of health status. From the workers' perspective, an efficient health system encompasses preventive measures, prompt relief from their illnesses, dependable facilities for treatment involving hospitalisation and modern medicine as also obtaining the maximum benefit in terms of leave with wages.

Six essential pre-requisites for plantation health care may be identified:-

1. Water Supply/Sewage Disposal: It is well established that water-supply and sewage disposal have a direct bearing on the health status of workers. However, these facilities are not adequate in many estates. Any effort at meeting the health needs would, therefore, have to start with the provision for adequate potable water-supply and proper sewage disposal.

2. Education : Since illiteracy and a low level of health awareness are major problems on plantations, the next step is to educate workers on health care, nutrition and hygiene. For the

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education to be effective, it has to be a well-planned programme.

3. Information System : The lack of a proper information net-work is another impediment which calls for correction. Data on the following must be collected, analysed and monitored on a regular and continuing basis :-

- who is falling sick?
- what is their illness?
- how many mandays are lost per category of illness?
- what is the frequency of illness?
- how much absenteeism is on health grounds, both with and without wages?
- how many 'man-days' are lost among workers due to illness in the family?

The above information must be counter-checked with surveys to ascertain worker attitudes and responses. Also, the cost incurred by the management in this regard should be quantified. The objective is to ascertain whether a favourable cost-benefit could be derived by obtaining better results through resource re-allocation.

4. Laboratory : The establishment of a laboratory, albeit on a small scale, could cater to the basic needs of the estate community in regard to clinical tests on blood and other samples. In view of the cost involved for each estate to separately provide this service, the question of adjoining plantations collectively organising such a facility could be considered.

5. Medical Officers' Role : The traditional role of the medical officer as one who mainly attends to and treats patients calls for review. His function has to be that of a Manager of Health Services. Such a changed approach requiers him to get deeply involved in the community problems that affect health. It also involves widening his communication net-work at all levels, such as, estate managers, middle-level staff and workers.

6. Legislation : The statutory provisions on health and welfare are generic in nature. Their uniform application may not give the desired results to all plantations which are sought to be covered. It is also true that the parent legislation, as the Plantations Labour Act in India, was conceived several decades back and the amendments effected thereto have been more in form than in substance to reflect the needs of the day. For instance, some clauses even prevent proper utilisation of resources or provision of services which are redundant in a well-integrated health care system, thereby causing heavy financial outlay that could have been utilised with benefit to the community. Appropriate changes to the existing legislations are, therefore, necessary, but it is better that suggestions in this regard are made, as it were, from below in keeping with the needs of the workers and the dependant population, rather than being imposed by the authorities from above.

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II. HEALTH EDUCATION AND FAMILY WELFARE

Health and family welfare are closely linked; in fact, they are inter-dependent. It is stating the obvious to reiterate that frequent child birth undermines the health of the mother. Yet, couples, particularly those employed in farms and plantations, cannot be persuaded to limit their families until they are assured that their children will survive. Therefore, maternal and child-health are, in turn, inter-dependent.

There is no doubt that it is in the interest of management to promote and ensure a minimum standard of health for workers as the number of mandays lost due to illness and the money spent on treatment can be considerable.

HEALTH EDUCATION

Promotion of health starts with educating the workers on what health is. They should be motivated to adopt a life style that ensures not merely the absence of illness, but an optimum level of physical well-being. Life styles like food habits, waste disposal, personal hygiene, environmental cleanliness, etc., are rooted in the culture and customs of a community. A good understanding of the religious, cultural and communal customs of the people, therefore, becomes essential and efforts have to be made to integrate good health practices with these customs. For example, eating beef is taboo for Hindus as is eating pork for Muslims; so, these religious practices have to be taken into consideration while educating people about the importance of a balanced diet. Obviously, these groups have to get their proteins from a

source other than beef or pork. Equally so, vegetarians have to get their protein intake from greens, grains, pulses and vegetables. False notions also govern food habits. Working classes commonly and erroneously believe that certain nutritious foods like wheat, garlic, etc., have a 'heating' effect on them and should, therefore, be avoided. Other customs are soaking vegetables in water as also throwing away the surplus water in which rice has been cooked. Re-educating them on these matters is bound to be a long and ardous process since long-rooted habits die hard.

The question is who should initiate the changes in thinking and habits. The problem is more pronounced in the plantations setting because workers are not going to readily accept new ideas from strangers. The plantation community itself should, therefore, be involved in the re-education process. Since it is mainly the women who set patterns and standards of cleanliness, hygiene and nutrition is a family, they are obviously the key people to approach. Women who have completed their families and have extrovert dispositions and leadership qualities are ideal for this purpose. Workers themselves should be encouraged to select their representatives - one for a cluster of 20 houses. Unlike community workers who promote health and also administer simple treatment, it is adequate that they are encouraged to act as a "link" between the resident population and the medical department and management; they should not have any curative role. Their function is merely to serve as information providers to the authorities and motivate their colleagues into adopting health practices and attitudes. Apart from endeavouring

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to reduce the communication gap, they must reflect the opinion of the "consumer's" health care system.

FAMILY WELFARE PROGRAMME

Family Welfare Programme in the context of plantation workers has a special significance because of the definite link between productivity and the size of the family, particularly in the case of women. An UPASI study on the output of 249 women tea pluckers in South India revealed that 43 of them or 17.3 per cent consistently performed well in that they accounted for 21.6 per cent of the harvest. It also disclosed that nearly 60 per cent of the efficient workers were in the age group of 20 - 34. However, one of the factors that tendered to adversly affect their performance is frequent child birth. The younger woman could be a good worker, but frequent pregnancies and child-birth or illness of hereself and her children have a dampening effect. It has also been established that 80 per cent of women, after the third pregnancy, develop anaemia, and thereby drop in work performance. Frequency of pregnancy and child-birth can only be reduced if every pregnancy could end in the birth of a live, healthy child, with a reasonable chance of survival.

It is against this background that a Maternal Child Health and Family Welfare Programme with the following components becomes imperative in plantations where the bulk of the labour force are women :-

- Pre-natal and ante-natal care preferably, from conception;

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- Education of the mother on nutrition, personal hygiene, environmental hygiene, child care, nutrition for the child, growth and development of the child and protective immunisation;

- Monitoring of all children from birth, their immunisation, protection, and preventive measures to ensure continuation of a healthy life;

- Spacing between children to ensure better health of both mothers and children;

- Methods of prevention of pregnancy after the second or third pregnancy and

- Planning of the family, in addition to limiting it.

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III. MATERNAL CARE

The purpose of maternal care is that the health of the mother is well looked after to enable a safe delivery; it corrects deficiencies and prepares her for motherhood.

Since the bulk of the work force in plantations consists of women, maternal care has to be an important component of health service. In addition to the statutory provision for maternity leave, it has been the general practice for plantation management to provide some form of maternal care, but since most estate dispensaries are manned by pharmacists - in the absence of hospitals with female doctors or nurses - there is much scope for upgrading the services. Apart from the benefit which such care accrues to the workers, there is also a corresponding gain to the managements if one were to recognise that there is a direct relationship between the health of the woman worker and her efficiency.

It is a good practice for managements to ensure that all women workers register themselves at the maternal health clinic from the time they miss their first menstrual period. Pregnancies can be terminated, if desired, for whatever reason before 12 weeks are completed. For enabling the birth of a normal, healthy child, the workers should be treated for anaemia, sexually transmitted disese, etc. They should also be checked and treated for systemic diseases like hypertension, diabetics, tuberculosis or health ailments or complications like toxaemia. Even in respect of normal pregnancy, they should be advised on a well-balanced diet, exercise, etc. and educate on the care of the child to be born, feeding techniques, personal

hygiene and the need for planning a family. From the third month of pregnancy, they should be checked every month until delivery, but in cases where special care is required, the checkup should be more frequent.

The Registration could be done on the lines of the attached Maternal Card (Annexure - I) which could, if required, give the history of systemic disease and previous pregnancy. Additionally, the Card should indicate the expected date of delivery. The height, weight, blood pressure, size of the uterus along with the urine and blood should be checked every month. Three doses of Tetanus Toxoid should also be given every month from the 7th month of pregnancy besides Iron and Folic Acid tablets (IFA) particularly during the last 6 weeks of pregnancy.

It may seem ironical that while women workers avail themselves of the 'perquisite' of maternity leave, they could miss out on maternity care as they cannot walk to the hospital/dispensary in an advanced stage of pregnancy. This situation could be resolved by managements deputing their para-medical staff to the periphery of the estates where the workers' quarters are located for conducting health education classes and ante-natal clinics.

Considering the higher rate of infant mortality among cases delivered at home vis-a-vis those in hospitals, the need for managements to enthuse women workers to deliver in hospitals can hardly be over-emphasised. That need becomes imperative in the following cases :-

- all primies, i.e. women expecting their first child;
- those who are, during their first pregnancy, less than 18 years of age or more than 26 years;
- those with history of complicated pregnancy or Caesarean delivery or any other instrumental delivery, post partum, haemorrhage etc.;
- those with history of repeated abortions and still births;
- those with history of toxaemia or pregnancy;
- those with systemic disease and
- those who wish to have sterilisation operation.

The modus operandi of organising ante-natal clinics may now be referred to. Ideally, they should be at the pheriphery of the estates to facilitate attendance of the pregnant women. While such clinics can be organised in the dispensary, those estates which do not have this facility could make use of the creche. For this purpose, a small area should be screened off and a table placed for the examination of the pregnant women. The doctor and nurse from the estate hospital should visit each division on a given day every month. They should have with them the following items :-

- ante-natal cards for each mother-to-be
- weighing machine
- blood-pressure instrument
- spirit lamp, test tubes and acetic acid to test the urine for albumin
- haemoglobinometer
- iron and folic acid tablets

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- Tetanus Toxoid injections
- sterile syringes and needles and an autoclave or equipment to boil the same.

The best time to conduct the ante-natal clinics is the afternoon. The women should be assembled and the doctor or nurse should give them a health/nutrition talk, choosing only one subject a day. The examination and test can then be conducted. An important point to remember is not to needlessly medicate the expectant woman as the real effects on the foetus are not fully known.

Coming to post-natal care, although there is no statutory obligation for a medical check-up or a fitness certificate before rejoining duty after maternity leave, it is in the interest of both the management and worker to have all delivery cases seen in the first 40 days after delivery, at least, once by the Medical personnel. From the Maternal Child Health (MCH) aspect as well, it must be stressed that a woman worker can perform at prime efficiency only if she enjoys optimum health.

From the practical angle, it is suggested that post-natal and ante-natal clinics could be organised every month on the same day. They could even be combined with post sterilisation clinics. At the post-natal clinics, attention should be paid to the following points involving the mother :-

- general health
- vaginal discharge

- involution of the height of the uterus
- whether she is sterilised and
- the progress of the child.

It is important that all the details are entered on the card and the salient features of the MCH programme emphasised.

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IV. CHILD WELFARE

The concept of child welfare has undergone marked changes in recent times. The earlier perception of the child as being a dependant and a possession is fading out and it is now universally accepted that the child is an individual in his own right, with unique traits, potentialities and needs and that child welfare encompasses his physical, emotional and psychological development.

Although child welfare centres have been in operation for several decades in the Third World countries, it was only in the '70s that an official policy on child welfare came to be enunciated. For instance, the Indian Government officially recognised in 1974 that children are the nation's supremely important asset and that programmes designed for them must find a prominent place in the national plans by way of human resource development. It was further accepted that investment in child represented investment in human capital. This last concept is of special relevance in the plantation setting because experience has shown that investment in child welfare has paid rich dividends in the "captive" permanent labour force, for the children of workers have returned to the estate with higher skills to be employed as nurses, creche attendants, etc.

The cornerstone of the child welfare programmes in the plantations is the creche, which caters to children between 6 weeks and 5 years plus. On estates where there is a good response to family planning, it has been observed that children 0 - 5 age group constitute 11 per cent of the population but where the response is poor, the proportion is higher at 17 per cent.

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For purposes of child welfare, those in the 0-5 age group should be divided into 2 sub-groups - below 3 years and 3 years and above. The emphasis on the former category should be on health and nutrition, whereas, for the latter, the stress should be on training to prepare them for school, inculcation of good habits and discipline and to help in co-ordination. This is also the time to detect abnormal personality traits in them which call for correction.

The creche should be a well-ventilated place and divided to separately accommodate children below and above 3 years. The younger children should be provided with moveable cradles and soft toys. They should be given milk in addition to porridge or other nutritional food provided by the estate. Cleanliness in the surroundings and of the milk vessels should be observed. A fly-proof cupboard should be made available to store the utensils and all food articles. Ideally, there should be one creche attendant for every 10 creche babies. They should be trained to recognise the cry of the distressed child and to frequently change nappies. They should also be responsible for the cleanliness of the creche.

Children above 3 years of age should be provided with sufficient black-board space to give full expression to developing co-ordination of the head, eyes and hands. At this age, they should be able to recognise shapes, colours and natural items like flowers, trees, birds, animals, etc. and also to begin to read and write. They should be under the care of a well-trained creche attendant or Balasevika who can prepare the child for school.

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Toilet and wash-basin facilities must be made available to the children as this is the age they can be trained to use the toilet properly and to learn such habits as washing hands before and after food. An interesting side-light of such training is that in several instances, the toddlers have even reminded their parents on the usage of toilets, wash-basins, etc. At the creche, a carefully planned pre-school education may be imparted as it has been observed that children with creche training turn out to be better in studies and behaviour when they join the school than those without a creche background.

Immunisation is a crucial aspect of child welfare and should be done at the creche. It is assured that all children attending the creche are immunised with triple antigen, anti-polio, B.C.G. and measles vaccines as per the following schedule :-

Primary immunisation and Booster doses

- at birth	- B.C.G. (anti-tuberculosis)
- at 3 to 4 months	- Triple antigen + Oral Polio vaccine - 1st dose
- at 4 to 5 months	- Triple antigen + Oral Polio vaccine - 2nd dose
- at 5 to 6 months	- Triple antigen + Oral Polio vaccine - 3rd dose
- at 9 to 12 months	- Measles Vaccine
- at 1½ years	- Triple antigen + Oral Polio Booster
- at 5 years	- Triple antigen + Oral Polio Booster
- at 5 years	- T.A.B. Vaccine.

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It is the responsibility of the medical officer to monitor the health of the children as also to check the food given and the cleanliness of the surroundings on the basis of the "Road to Health Card", vide Annexure-II. It is important that he visits the creche at least once a month.

A further aspect in planning and administering a creche is that there should be an open space for outdoor games. A swing, see-saw and other good facilities may be provided. A flower garden and kitchen garden are encouraged with the involvement of the children. It has been observed that where kitchen garden exists, the supply of vegetables and fruits therefrom has not only helped to supplement the children's daily minimal requirements of vitamins and minerals but has also kept down the expenditure on food.

The success of the child care programme has been greatly in evidence in the plantations in South India by way of reduction in the in-patient and out-patient percentage of children. For instance, it has been noticed in one group of estates that, as a result, whereas 60 per cent of the out-patients for minor ailments in 1976 were children, this proportion dropped to 26 per cent in 1982; likewise, the bed-occupancy rate in the paediatric ward which was as much as 90 per cent in 1976 declined to less than 10 per cent in 1982.

V. WATER SUPPLY

The supply of clean drinking water is a basic foundation on which many welfare programmes like nutritional support, preventive medicine, environmental and personal hygiene, are structured in the plantations.

Diseases like typhoid, cholera, diarrhoea, dysentery, worm infestations, jaundice, polio-myelitis, etc. are water-borne, - in fact, 70 to 80 per cent of the morbidity among plantation workers is reported to be due to water-borne diseases as water is not chlorinated or is inadequately chlorinated. Where water was properly chlorinated, the incidence dropped to 12.5 per cent.

It has been observed that 40 per cent of the budget for medicines in hospitals is spent on water-borne diseases. Therefore, both from the point of view of mandays lost and the money spent, it is vital that managements provide infection-free, potable water to workers.

Three main objectives and concepts are to be considered when planning water-supply in plantations:-

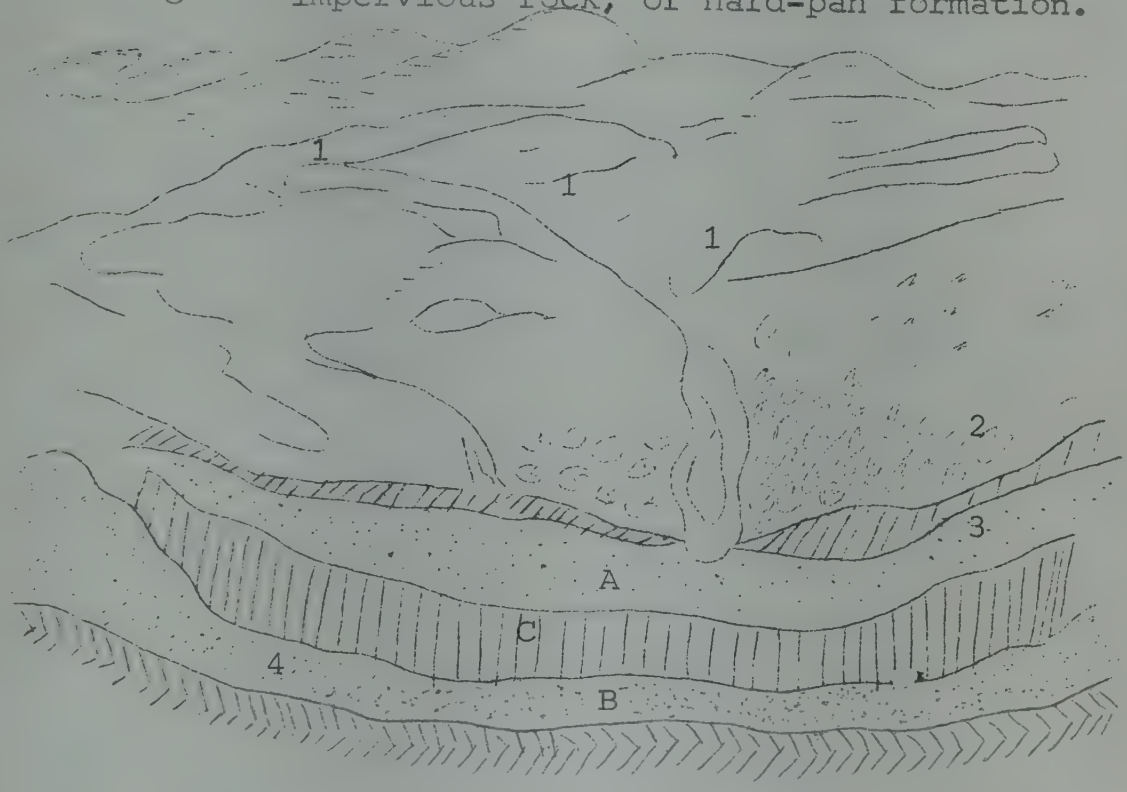
- safe and wholesome supply to users
- supply of adequate quantity
- ready availability to encourage personal and household hygiene.

Sources of water:

The common sources of water in plantations are ground water, such as springs and wells and surface water, such as rivers, streams, ponds, lakes and swamps.

DIAGRAM - I. GEOLOGICAL FORMATIONS

A = Non-confined (non-artesian), water-bearing formation covered with top soil.
B = Confined (artesian), water-bearing formation
C = Impervious rock, or hard-pan formation.



1 = Areas where there are good possibilities of obtaining water from infiltration galleries, well-point systems.

2 = Ground water is outcropping at this point, so that a flowing spring is formed. At the foot of river banks and hills other springs may possibly be found.

3 = Top of ground-water table.

4 = Area of infiltration to supply formation B.

DIAGRAM - II. OCCURRENCE AND DISTRIBUTION OF SUB-SURFACE WATER

Soil Water

Pellicular Water

Gravity or Vadose Water

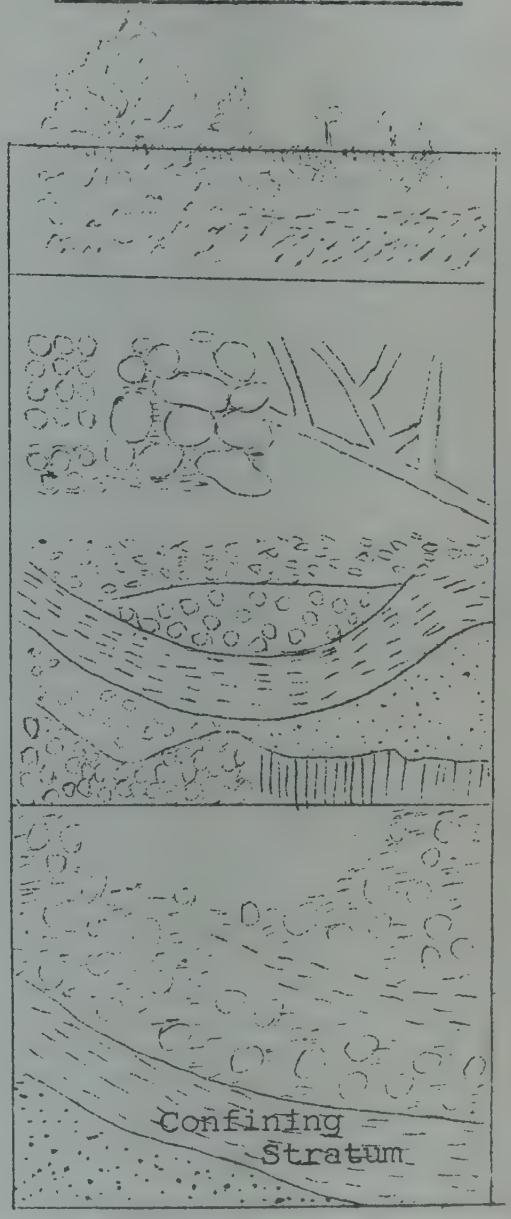
Perched Water

Capillary Water

Free Water

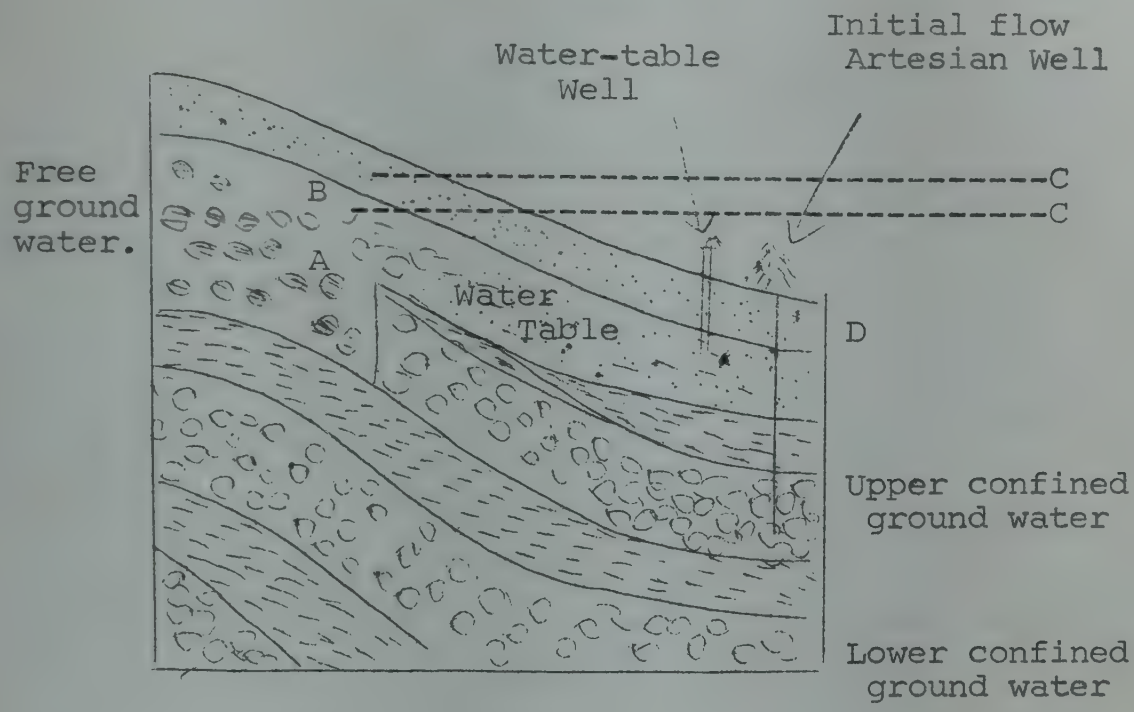
Confined Water

Connate Water



A. Chemically combined water
B. Water fixed in disconnected intestices
C. Water dissolved in magmas

DIAGRAM - III. COMPARISON OF FREE AND CONFINED GROUND WATER



BC = Theoretical static level of confined water body.
BC'= Pressure gradient; indicates actual static level in wells piercing the conduit.

Diagram I - Geological formations.

Diagram II - Occurrence and distribution of sub-surface water.

Diagram III - Comparison of free and confined ground water.

Most sources are from the free ground water.

Springs:

Springs are a common source of water-supply. A spring is merely an outcrop of ground water and appears as small water holes or wet spots on the hills. They are of the gravity or artesian type. In the gravity type, the ground water flows over an impervious stratum into the surface. The yield will vary with the position of the water table which, in turn, fluctuates with rain-fall. Such a spring may dry up after a dry season. In the artesian type, the water is confined to two impermeable layers and is likely to be uniform and constant.

For preparing the spring as a source of water-supply, the area around it down to the impervious layer should be dug out to remove silt, decomposed rock and other rock fragments and mineral matter, especially calcium carbonate. Particular care should be taken in fissured lime-stone areas to avoid disturbing the underground formation as the spring may get deflected to other fissures.

To protect the spring, the collection structure should be located and built so as to force the surface water to pass through 10 feet of soil before reaching the ground water. All animals and habitation should be excluded for an area of 100-300 feet at least around the collection chamber. A diversion ditch above and around

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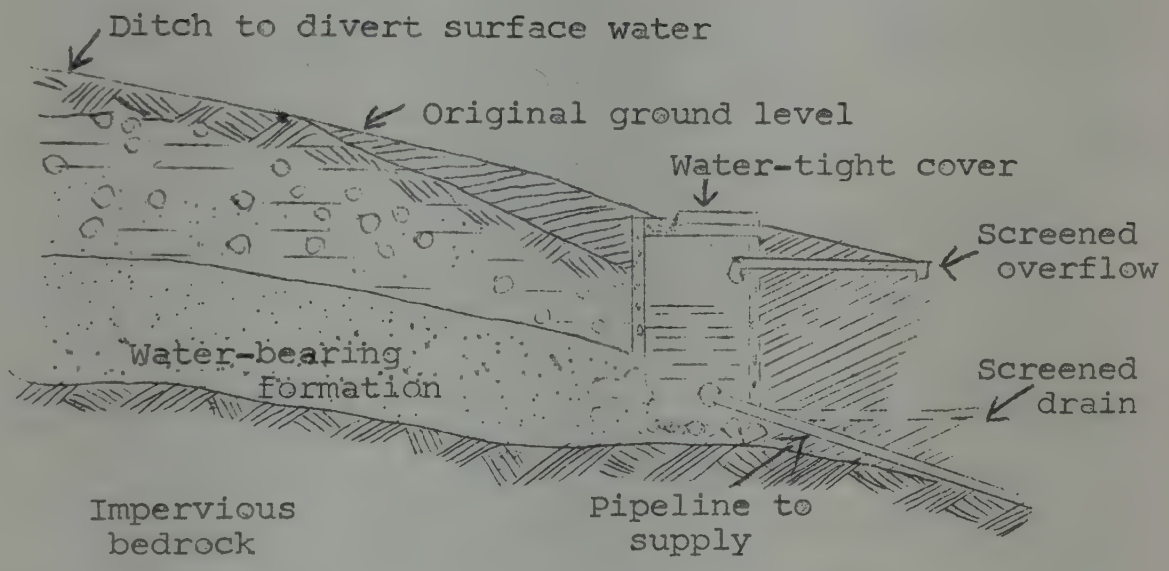
DIAGRAM - IV. PROTECTED SPRING WATER



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may be dug to interrupt surface run-off water from reaching the water collection zone. Clean spring water which is not polluted or affected by turbidity after heavy rains can be directly piped for use through gravity feed system.

Diagram IV: Protected Spring Water.

Rivers or Streams:

Rivers and streams, as a source of water-supply on the estate, are not uncommon. One must remember that a river connects the anal end of one community to the oral end of another community. Where the river traverses through a sparsely populated region, it, nevertheless, serves as the main source of water to several estate communities.

The stream or river must be dammed at a higher point of entry into the estate and allowed to flow into a reservoir through a pipe. It is then made to pass through a distribution system. Since the water is dammed at a higher level, maintenance of the catchment area is poor. Often, a pipe is laid at the lower level of the dam, which causes problems. Vegetation around the catchment area rots and falls into the water, thereby increasing the chlorine demand of water. Furthermore, since the outlet from the catchment area is placed at the lower end of the dam, the aerated surface water overflows and is wasted and the stagnant water below is piped into the reservoir.

Aeration is important to remove excess gases dissolved in water. In plantations where the water has a higher content of iron than the permissible limit, simple aeration also helps to reduce the iron content.

The capacity of the reservoir is determined according to the community served. For a population of 1,000 at the rate of 25 gallons per head per day, the capacity should be at least 25,000 gallons of water.

Wherever the river or stream is dammed for purpose of water supply, the catchment area should be cleared of vegetation and the bed and sides be lined with pebbles or stones. Water from the dam should overflow for about 4-6 feet before collection into the reservoir.

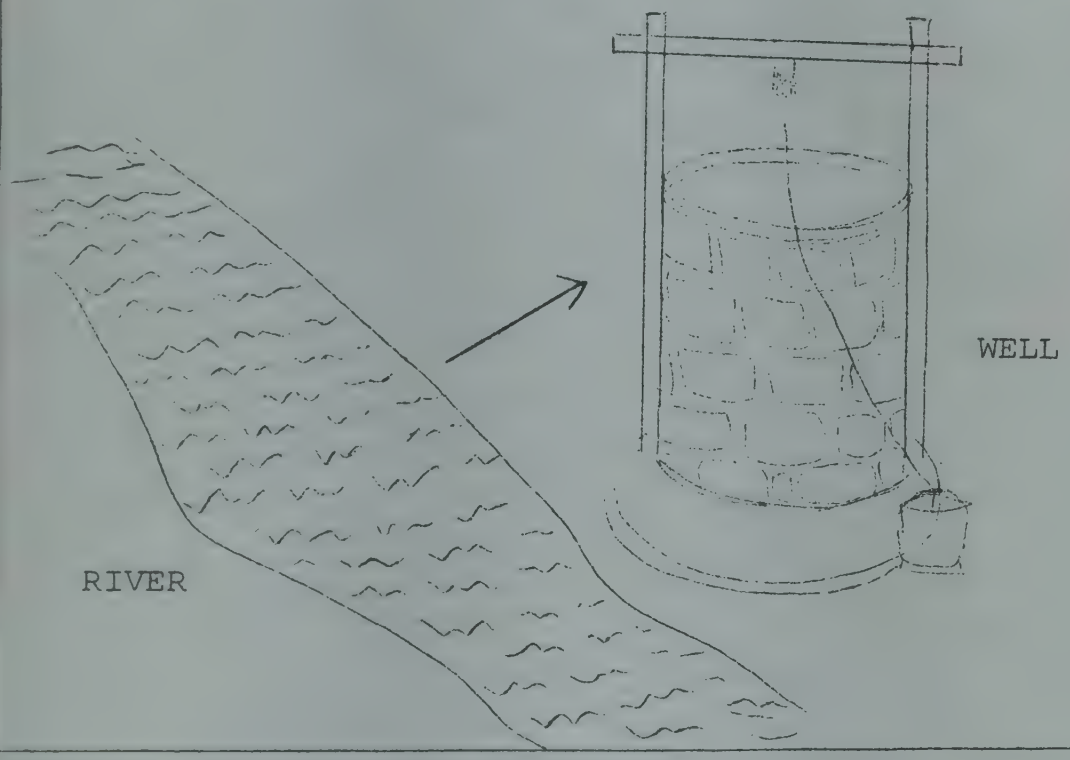
Periodic cleaning of the reservoir is essential. Since manual cleaning is not very effective, it is suggested that the bottom of the reservoir be sloped and a pipe placed at the lower end which can be kept closed. The outlet from the reservoir to the distribution system should be placed a foot away from the reservoir. While cleaning the reservoir, the bottom is to be churned and flushed out by opening the pipe placed at the lower end.

Augmenting water-supply from rivers:

In some places, wells are dug close to the river to enable them to get filled with water from the underground source, thereby increasing the water availability.

Diagram V: Water supply from river to well.

DIAGRAM - V. WATER SUPPLY FROM RIVER TO WELL



The well is lined for about 4 feet from the top in the hope that water would flow in the direction of the arrow from the river to the well, with the soil acting as a filtration gallery. The defect in this system is that the soil between the river and the well gets sick and does not filter effectively, with the result that the water from the river passes directly to the well which is pumped up for distribution.

Ideally, wells should not be sited near the water or stream. However, where they have already been constructed, they should be plastered with cement for a depth of 15-20 feet. The water in the river will percolate and as water finds its own level, it will rise in the well through the soil. The water then gets filtered during this process and is fit for use.

The same principle is to be followed where water is tapped from swamps. A well is dug in the region and the walls are plastered to a depth of 15-20 feet. The swamp water will then filter down and rise through the soil.

It is to be noted that the well must rise above the water level so as to prevent contamination from overflow from the swamp. The plastering of the sides prevents water from directly gaining entry into the well from the sides.

Pollution:

In the case of ground supplies, pollution by bacteria in the soil is an important factor to be reckoned with. The travel of bacteria depends on various

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factors like porosity and permeability of the soil. One of the main sources of pollution is through pit privies, bore-hole latrines, cess pools and seepage pits.

It is imperative that privies or cess pools should be located down-hill or, at least, on some level land and to avoid, if possible, placing it directly uphill from a well. Where uphill locations cannot be avoided, a distance of 15 m. (50 feet) will prevent bacterial pollution of the well. In sandy soil, privies may be located as close as 7.5 m. (25 feet) from a properly constructed household well if it is impossible to place it at a greater distance. In case of a higher yielding well, not less than 15 m. (50 feet) should separate the well from a latrine. Other sanitary measures to exclude entry of surface water are :-

- The ground surface in the immediate vicinity of the well should slope away from it and be well drained.
- In the case of public wells, a special drainage system should be provided for waste water.
- The pump platform or well cover should be at least 2 feet above the highest level of floods from nearby rivers and be protected against flood waters and surface run-off. It should be water tight, preferably of concrete - 4" thick, and may extend about 2 feet beyond the well-lining. Its surface should slope from the centre towards a drain built along its edges. The waste water should then be collected by a lined ditch leading to a suitable drainage area or soakage pit, in order to avoid the occurrence of muddy ground and bogs in the immediate vicinity of the well.
- In the case of driven, jetted and drilled wells, an annular space of at least 4 cm. (1½") wide on the outside of the well casing may be grouted with cement in order to prevent surface water from reaching the casing and running down along it to the ground water.

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Infiltration galleries:

The guidelines outlined above are equally applicable to infiltration galleries. These structures should be located away from all possible sources of pollution. Diversion ditches should be built around the galleries in order to prevent surface water from running directly over them and from entering without natural filteration.

Chlorination of water:

The simplest method of providing clean water is to chlorinate it. The chlorinator should be installed at the inlet of the reservoir so that the contact time required for chlorination can be achieved. The chlorine requirement is determined by the Horrocks Test. A level of 1 ppm. at the tap nearest to the reservoir and a level of 0.5 ppm. at the farthest end is acceptable.

Once the water is chlorinated, it should not be exposed and, hence, the reservoir should be provided with a covered opening. Ventilation can be provided by raising the roof of the reservoir a foot above the rim and wire-netting the distance between the roof and the rim of the reservoir. This will afford ventilation and also provide protection to the chlorinated water.

Slow sand filters:

The stored water in the reservoirs is purified by filteration through sand. As water goes through the bed, it constantly changes direction so that particles come into contact with the grain by centrifugal and intertial forces. The space between the grains is gradually reduced, as they become covered with a sticky layer formed of

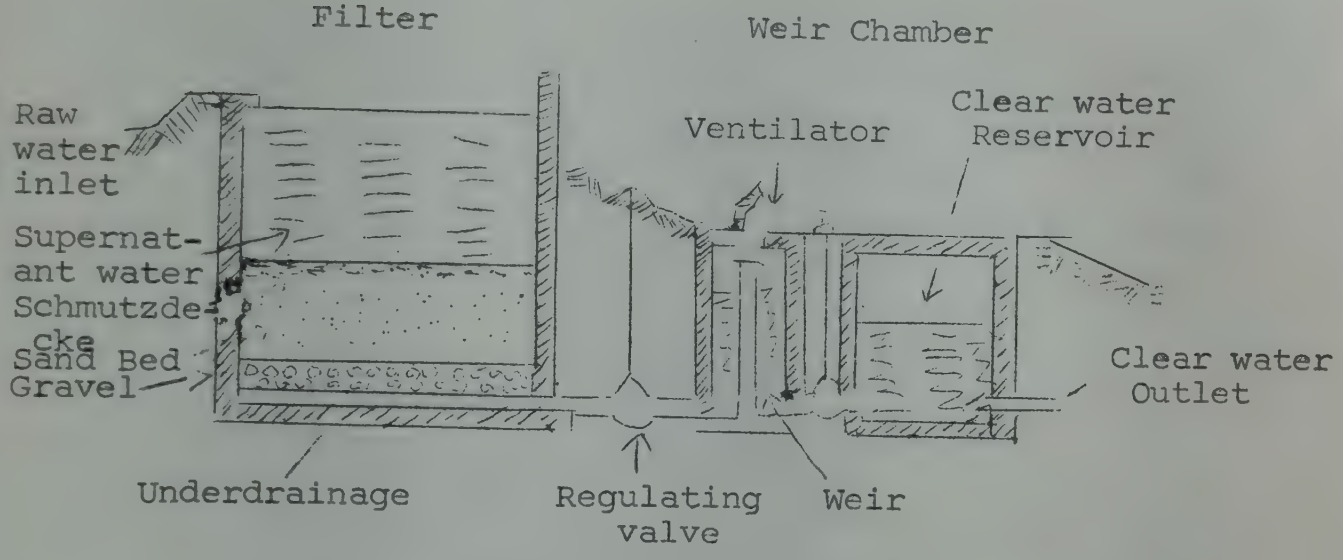
material attached by absorption. There are pockets between the grain which act as sedimentation basins. At the same time, the active microscopic life in the sticky layers around the grain consisting of bacteria, protozoa and other micro-organisms feed on impurities.

This zone extends about ½ m. down from the surface but gradually decreases in activity downwards as the water is purified and contains less food. At the bottom layer of the bed, the compounds formed by biological activity are further reduced. Thus, organic matter is reduced to harmless inorganic salts in solution. However, during this conversion, oxygen in the water is used up, evolved and absorbed. Hence, aeration of water to improve the oxygen content of water is necessary. This can be done by letting the water cascade over a height of 4 - 6 feet.

In a mature sand bed, a thick layer called the schmutgdecke, consisting of algae, plankton, bacteria and other forms of life forms on the surface of the bed and should be cleaned every 2 months.

Diagram - VI: Water Filteration

DIAGRAM - VI. WATER FILTERATION



(Small slow sand filter)

VI. SANITATION

Provision of drinking water is closely linked with sanitation and waste water disposal.

Sanitation:

A very effective system has been found to be the 'Leach Pit Latrine'or the 'RCAP Latrine'*, the design of which is given in page 32.

The advantages of the RCAP latrine are two-fold; first, the water requirement for flushing the faecal matter is minimal and, second, it does away for scavangers cleaning as the faecal matter collected in the pits gets decomposed and becomes innocuous.

There is increasing recognition that communal latrines do not serve the purpose, particularly in view of the diffused responsibility for maintaining their cleanliness. On the contrary, a latrine attached to the house has been preferred by workers and the notion that they want it away has been proved wrong. If envorinmental hygiene and sanitation are accepted as a need for healthy living, the attachment of latrine to the house becomes essential. It has also been found that given adequate water supply, workers maintain the latrines clean, but where the supply is inadequate, they do not use attached latrines. This emphasises the point that sanitary latrines are closely linked to provision of adequate water supply.

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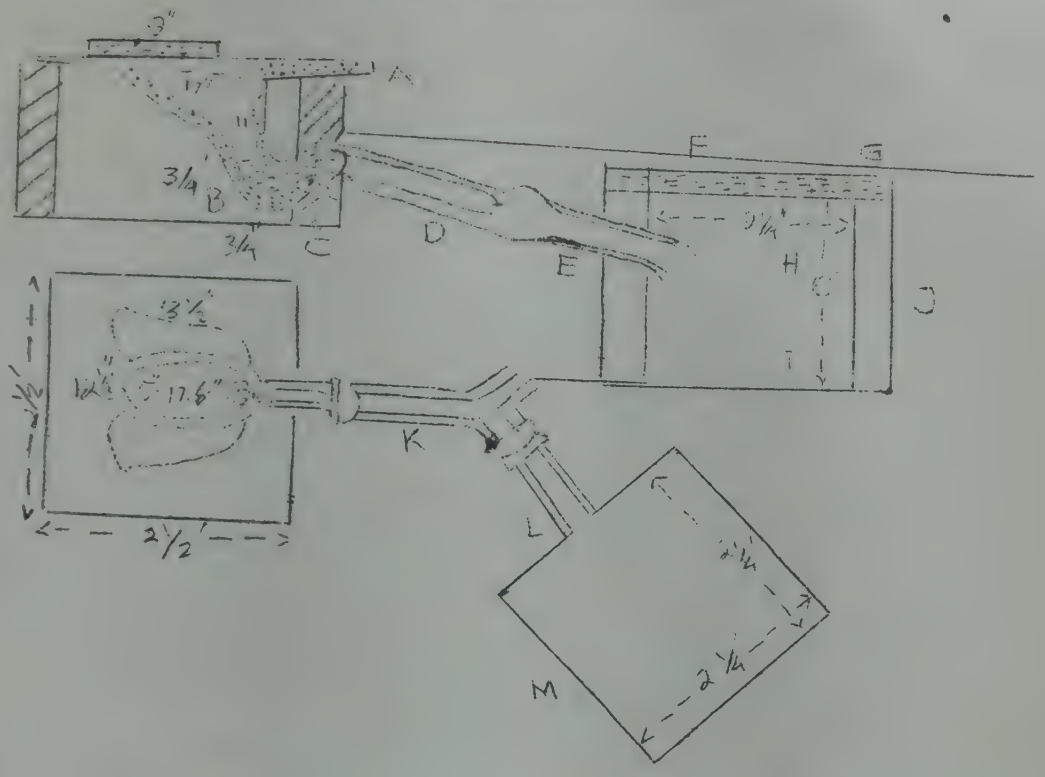
* Named after the Research-cum-Action Project, Institute of Public Health, Poonamalle, Tamil Nadu, where it was developed.

LEACH PIT OR RCAP LATRINE



A = Squat Plates
B = Diameter of curved pipe
C = Water Closet
D = Lead-off Pipe
E = Lengthy Tube
F = Loose Earth
G = Concrete Slab
H = Minimum measurement
J = Opened right angled attachment 4½" thick clay brick structure
K = Lead-off Pipe
L = Lengthy Tube 3" diameter
M = Leach Pit

Waste Water Disposal:

Waste is of two kinds :

- Kitchen and bath water
- Sewage water

A proper drainage system has to be evolved for waste water because left into the open, it becomes a major health hazard by breeding of mosquitoes.

Kitchen water usually has components of grease along with vegetable waste matter. Since housing units are placed in colonies, the best way to tackle the problem would be to dig around the colony drains called apron drains. From each house, the water has to be directed to the apron drains which coalesce and lead to an outlet at one end of the colony. At the outlet point, the drain is to be lined with grass which will remove the grease in the water and a mesh can be provided to remove the solids in the form of vegetable waste. The water so attended can be led out either to a soak pit or field for cultivation or even to a fish pond which can provide fish culture for the families.

A soak pit is once again a leach pit. It is to be dug deep depending on the amount of waste water it caters for. The floor of the pit is to be filled loosely with big and small stones. The side of the soak pit must be lined with bricks to prevent caving in. However, the sides should not be cemented. The waste water falling into the soak pit will leach out into the soil and the solids can be cleared from time to time.

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All households have dry waste which need disposal. The best way is through composite pits which are dug based on the amount of waste disposal in and around the colonies. All dry wastes must be put into the pit, which, from time to time, should be sprinkled with layers of soil. When the pit is full, it is to be partially burnt (and filled with soil and water sprinkled). Within a period of six months, the contents of the pit decompose and become manure.

VII. FAMILY PLANNING

Plantations generally employ working families as the men can be engaged in more strenuous operations in the field or factory while the women and young on crop harvesting and certain other lighter jobs. The system of family employment in plantations makes this industry the largest employers of women.

Because of the high concentration of women workers and the reproductive age-group into which they fall, the plantation labour have the potential of a higher birth-rate than the other sectors of the economy. That involves the following liabilities on managements :-

- maternity benefit
- hospital and medical facilities for pre and post-natal care
- work loss for about 120 days per annum resulting from maternity and occasional absences
- employment of additional labour estimated at one-third over the actual requirement to make up for maternal absences
- housing, medical care and maternity benefits for the additional labour and the proportionate increase in the cost of creche facilities, schools, etc.
- additional cost of medical care and sanitary facilities for the young dependent population
- physical demand on available resources of working families
- social and physchological effects on large families living in the standard workers' quarters.

Some of the items can be estimated in terms of financial cost appearing in the estate's accounts, but effects on the human and industrial relations aspects

cannot be so readily quantified. It has been calculated that the monetary cost incurred by the management in respect of a child born on the estate is currently of the order of Rs.8,500 spread over a period of 15 years. The breakup is as under :

An estimate of direct cost of an additional child to an estate in South India.

1.	Medical assistance, ante-natal and post-natal.	..	Rs. 200
2.	Maternity benefit.	..	1500
3.	Child Care expenses:		
	(a) Age 0-1		
	Milk/meals/clothing, creche facilities etc.	..	350
	(b) Age 2-5		
	Milk/meals, clothing, creche facilities, toys, medical facilities.	..	1350
	(c) Age 6-8		
	Meals, educational expenses and medical expenses.	..	400
	(d) Age 9-15		
	Medical expenses.	..	1600
4.	Work loss due to absenteeism attributable to maternity causes - 120 days.	..	2200
5.	Extra cost of employing and maintaining additional labour consequent on the absence of main worker on maternity cases.	..	950
		Total:	Rs. 8500

While the cost involved is a weighty consideration for the management, the more important factor is that uncontrolled birth rate frustrates all economic gains. It is in this context that the industry's efforts to encourage family planning assume an urgent national objective. Initially, tendency existed among workers to view employers' involvement as a means to cut maternity costs and not as a reflection of their genuine interest in the welfare of labour. Equally so, in view of the certitude imparted by a terminal operation, some managements advocate a high cost benefit to attract sufficient workers, particularly women, to accept sterilisation.

The "No-Birth Bonus" scheme was devised by the UPASI against the above background and while it has been experimented on selected estates, it is, perhaps, likely that other managements might wish to introduce the scheme on a longer-term basis. The basic details are explained below :-

> "All married women workers capable of having children are eligible to join the scheme. The management will pay to all participants a monthly sum of, say, Rs.10/- per head until they reach the age of 45. The monthly payments will be placed into a Savings Account jointly in the name of the estate and the worker. The amount cannot be drawn until she completes her 45th year, but will accumulate compound interest in the interim. Since this is essentially a 'No-Birth-Bonus Scheme' one of the conditions is that the estate will deduct from the Savings Account a sum representing the

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cost of the maternity benefit and the hospital charges in respect of every child birth. The maternity benefit and the other statutory benefits will, however, be continued to be paid to the workers as these are independent of the bonus scheme. The amount of money accumulated in the Savings Account will be made available to the worker on the completion of her 45th year. It is estimated that a monthly payment of Rs.10/- over a period of 10 years, assuming there is no forfeiture due to pregnancy, will realise a sum of Rs.1,530/-, for a period of 15 years, this will be Rs.2,520/-, for 20 years Rs.3,990/- and for 25 years, Rs.5,280/-. Every facility will be made by the management to the participants in the scheme for the insertion of loops, sterilisation operations, and free supply of pills. The incentives already granted for undergoing terminal operations etc., will be in addition to the bonus payment".

Although the UPASI experiment on the "No-Birth-Bonus" was not pursued, it is to be noted that the scheme has certain advantages which are not apparent. The main advantage is that it operates on a highly flexible basis. A woman can join it after she has had one child or two or three children. She can reverse her decision if she so chooses and the most that can happen is that she forfeits the cash benefit but her rights under the various statutes are not affected. Furthermore, the cash accumulation under the bonus scheme suppliments her superannuation benefits in a substantial way.

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With regard to family planning techniques, the basic approval is that while the workers should be free to decide their option, it is important to recognise that an ideal contraception is one which is simple, safe, effective, reversible, economical and acceptable. Contraception is of two kinds:

- Temporary or reversible methods involving chemical, mechanical, intrauterine devices and systemic contraceptives.
- Terminal methods or permanent methods which involve surgical procedures.

1. TEMPORARY METHODS:

(i) Contraceptive Techniques -

(a) Coitus interruptus - This is one of the oldest methods of contraception wherein the sperms are prevented from being deposited in the vagina by withdrawing male genital organ during ejaculation. This has a reported failure rate of 40 per cent due to the delay in withdrawing or repeated coitus.

(b) Condoms - These are widely used. A condom is a thin rubber sheath to cover the male genital organ and it collects the sperms and prevents it from being deposited in the vagina. It is freely available, simple to use, reliable, and protects against spread of sexually transmitted disease. The failure rate is low.

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(c) Male pill & vaccines - These are only at the experimental stage.

(d) Rhythm method - This method involves calculating the days in the menstrual cycle wherein the number of days of absolute unfertility and the potential days of fertility are worked out. For this method to be effective, the menstrual periods must be regular. Normally, the first 11 days of the menstrual cycle and the last ten days of the menstrual cycle are the unfertile periods which are safe. From the 11th to 18th day is the fertile period which is considered to be unsafe during which certain precautions can be taken.

1 - 11th	12th - 18th	19th-28th
Safe (unfertile)	Unsafe (fertile)	Safe (unfertile)

The reliability of this method has been found to be only about 40 per cent.

(e) Foam tablets, Gels, Creams and Aerosols - These are spermicides or chemicals placed in the vagina 5 to 10 minutes prior to the intercourse, causing destruction to the sperms. This method, when properly used, is successful in 90 per cent of the cases.

(f) Diaphragm - These are small diaphragms acting as barriers which cover the cervix and thus prevent the sperms from travelling

into the cervical canal of the uterus. These have to be placed two hours before the intercourse and removed after 6 hours. A correct fitting of diaphragm is to be chosen involving utmost care along with spermaticide. It could be used by the women after proper training and is successful in 90 per cent of the cases.

(g) Oral pills - These are to be taken every day by the woman. They come in packets containing 21 or 28 pills. Pills are not to be used for prolonged periods as they inhibit the release of ova. They are effective, easy to take, but should be regularly taken to maintain the hormonal concentration. They prevent the ova from being produced, the mucus viscosity act as a barrier, uterine surface is made unfavourable for implantation and the fallopian tube motility is reduced. The advantages of using oral pills are, they prevent pre-menstrual tension, regularise the periods, reduce the breast lumps and prevent aches. The women must be counselled and screened for its successful implementation which if done properly, leads to success in 95 per cent of the cases.

(h) Intra Uterine Device - These are small plastic devices coming in various shapes and sizes which can be fitted by the trained personnel as an outpatient procedure in the uterus after the 5 to 8 days following the menstrual cycle or 6 weeks after the birth of the child. These are commonly known as the lippes loop, Copper 7, Copper T etc. These can be inserted after a

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proper gynaecological examination. The mode of action in preventing the implantation of the pregnancy is not known, but it creates a hostile environment to the spermatazoa and prevents the implantation of the fertilised ovum. It can give rise to low back pain, bleeding, menstrual cramps, vaginal discharge, allergy, sponstaneous expulsion and pelvic infection. Nevertheless, it is considered to be one of the safe methods and has an overall success rate of 98 per cent.

(i) Injectable hormonal contraceptions - These are long acting steroidal preparations providing an effective means of fertility regulation for women. These are effective for 5 to 7 years and they are implanted in the left arm. These inhibit ovulation, alter the cervical mucus, and the endometrium is suppressed. The injectables can be the future contraceptions because of their advantages and now, they are undergoing trials.

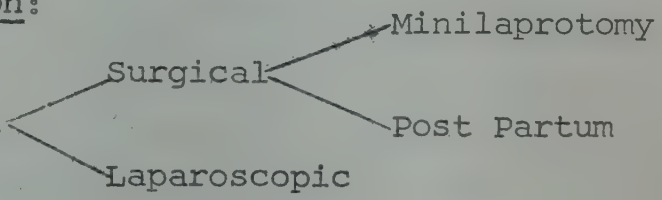
(j) Inter-uterine plugs - These are silicon plugs used for blocking the fallopian tubes on both the sides by a uteroscopy.

2. PERMANENT METHODS:

(a) Vasectomy - The operation is done for males by a minor surgical procedure wherein the two tubes carrying the sperm from the testicles are cut and ligated. It is simple,

does not require any admission in the hospital and could be done as an out-patient procdure with care. Recanalisation can be attempted if the couple desires to have children again.

(b) Female sterilisation:



2. Trans vaginal

This is a surgical procedure. The two fallopian tubes are cut and tied so that the sperms do not reach the tube for fertilisation. The operation can be done at any time convenient for the woman. The duration of stay is from one day to five days, with minimal trauma, and complications. Thus, it is the more popular method adopted in the plantations.

3. ABORTIONS:

Menstrual regulation and Medical Termination of pregnancies (MTP) are done with the help of vacuum aspiration, along with suitable contraceptions.

Among all these methods, in the plantations, as said earlier, tubectomy is the most preferred permanent option particularly since :

- women have developed an awareness that this method is the most safe for them,
- it can be performed at any time without hindrance to health,
- it involves simpler methods of operation with relatively low surgical skills,
- with more women involved in the community health programmes, the acceptance rate for this method is high,
- it entails admission in hospital for a maximum period of five days only; the only other method which entails shorter stay at hospitals is laproscopic sterilisation, but most hospitals do not have facilities for it and
- it is preferred on social grounds in the plantation atmosphere.

VIII. LEISURE-TIME ACTIVITIES

Given the imperatives of promoting labour welfare in all its aspects, it is only appropriate that the management should provide a comprehensive service, encompassing not only health, family planning, hygiene etc., but also the planning of leisure-time activities.

Workers' Recreation Club:

The formation of Labour Clubs could be encouraged by the management. A small, simple, empty building will serve the purpose. The workers themselves should be motivated to clean the building and its surroundings, plan its 'decor' and start a garden. While the management could initially provide some functional furniture like tables, chairs and benches, a nominal subscription (say, Re.1/- per month) per member is suggested.

The activities of the club could be left to the workers themselves, with the management, perhaps, helping to inaugurate it and seeing that the activities are 'balanced' to cover the interests of both men and women. If properly run, the club will become a hub of multifaceted activity. It can organise outdoor sports like football and indoor activities like carroms, cards etc., besides a library which subscribes to newspapers, popular vernacular magazines and paper-back novels. The Club can also arrange for tutions for educationally backward children and conduct functional literacy classes for young adults and school drop-outs. In estates where such a facility has already been provided, it is noticed that most of the 'students' who avail of these adult-literacy classes belong to the age group of 16 - 35. The striking feature is that the adult literacy and tution classes are supported

entirely by the workers. Experience has proved that the library opens up vistas beyond being a place for reading newspapers and magazines - it becomes a movement for education.

Mothers' Clubs:

The formation of Mothers' Clubs could also be considered in planning leisure-time activities for the plantation workers. True to the adage, "Educate a man and you educate an individual; educate a woman and you educate a family", mothers' clubs are a vital forum for imparting education and bringing about change. In some of the estates, they were first started to gain an entry point for nutrition education for the women workers. Predictably, they were not very popular in the beginning, for tired as the women must have been after a hard day's work, they had little energy or inclination to attend the meetings as their weekly holidays were reserved for bathing, marketing and, perhaps, an occasional cinema. Seeing how poorly attended the clubs were, the idea of introducing the Lottery Funds Scheme was hit upon which led to an immediate success. The women vied with each other to pay their nominal membership fee of Re.1/- a month and also to pay their 'lottery' dues. Every month, lots would be drawn and items of household utility would be given to the members in rotation. It was stipulated that the fund money could only be used to purchase household or utility items for women and children. Having ensured a good membership and regular attendance at these Mothers' Clubs, the organisers steer their programmes to encompass educative, creative and financially renumerative

activities like planning a balanced diet, home budgeting, tailoring, embroidery, knitting, crochet, basket-making, bead work etc.

Imagine the environment at the monthly meeting of a typical Mothers' Club. A Lottery Fund 'Draw' is about to take place. While waiting for the proceedings to commence, the well-dressed women take out their 'handwork'. Some of them knit, other crochet, yet others make bags from plastic wire, all the while chattering. Their conversation centres around the price of essential food items, crafts, nutrition and family planning and the importance of immunisation.

These women are 'programmed' to gear their thinking and conversation around topics which have a vital bearing on their lives. This approach is based on the Chinese concept of repeating a message every 21 days. The 'programming' is the message of family planning - but it is not dealt with separately. They are given a 'package deal' - a number of inter-related services and facilities, which are readily accepted now, though not popular in the beginning.

The importance of planning and organising leisure-time activities for plantation workers cannot be over-emphasised, from the view of both the management and the workers. A happy relaxed worker who has spent her leisure-time profitably and enjoyably is a willing worker and will give more of himself. And the management too gains through increased efficiency, greater productivity and more harmonious labour/management relationship.

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IX. LINK WORKERS

The establishment of Primary Health Centres (PHC) throughout India was recommended in the 1940s to provide the population with basic and integrated health care. In the late '70s, the emphasis was on starting Multi-Purpose Workers' Scheme (MPW) for improving the performance of the PHCs. For this purpose, the functions of various peripheral workers like the Basic Health Worker, Vaccinator, Cholera Worker, etc. were merged into a multi-purpose worker. Additionally, he was given the responsibility of treating minor illness from a standardised medical kit. However, a review of the system indicated that the utilisation of the facilities offered by the basic health services was poor. The main drawbacks were:

- The health service staff was alien to the community.

- The various personnel involved from the MPW to the Doctor in charge of the Primary Health Centre were merely doing their normal work, without evaluating the extent of benefit to the community or the reaction of the community. A wide gap existed between the basic health service and their beneficiaries in the community. It was, therefore, stressed that unless this gap was closed or narrowed, the benefits of the basic health system would not reach the rural population.

The creation of a new band of para-professional and semi-professional health workers was suggested who would form the liaison between the MPW and the community. The concept of the Community Health Worker (CHW)was thus born. While the objectives of the CHW scheme would be the same, the intention was that the method of implemen-

tation would be tailored to suit the individual community and the health-care delivery system operating in the area. It was keeping these factors in mind and taking into consideration the needs of the plantation community that the "Link Worker Scheme" was devised by the UPASI.

In India, the Plantations Labour Act provides for medical facilities on the plantations. A net-work of dispensaries and small hospitals exists for serving the plantation population, with a medical officer to cover the population at 1:2,444 and para-medical officer to cover the population at 1:1,750. Plantation workers in the organised sector are looked after from "womb to tomb" and the provisions include free housing, water supply, medical care for the family, creches for children under 6 years, labour clubs for recreation, besides other welfare benefits like maternity benefit, sickness benefit, leave with wages, etc.

Workers employed on plantations invariably live in their residential quarters, each 'line' having about 6 houses in a row. A few lines together form a colony, with a population of 25 - 500 people, depending on the number of lines and the size of the families.

In the implementation by the UPASI of its Comprehensive Labour Welfare Scheme (CLWS), the following four models were developed in 1971 and their feasibility tried:-

- CLWS staff worked in collaboration with and co-operation from the management and medical department.
- CLWS staff worked in collaboration with the management only, with little involvement from the medical department.

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- the CLWS staff worked with co-operation from the medical department, with little or no involvement from the management.

- the CLWS staff worked independently of the management and medical department.

Not surprisingly, the first model was found to be the most effective, emphasising the point that for total health-care in an employer-employee situation, the total involvement of the management and medical department is essential. However, the initial response was that workers availed of the services, not due to conviction, but more to satisfy the management and medical department. Through experience, a number of factors emerged:

- Time available for health education, which is the core of the scheme, was limited to 1-1½ hours a day, as both husband and wife were away at work during the day; the programme had to be tailored to fit into their timing.

- The influence group on an estate are the field staff and hence their participation is essential in the programme.

- Attitudes of different cadres of personnel, like management, medical staff, and labourers, needed change.

- Effective communication channels had to be developed for a realistic information system.

- Frequent contacts were required with emphasis on oral communication.

- Documentation system needed review.

- There was need for marginal re-organisation of services.

From these findings, the need for integration of the total health care programme into the normal working of the estate emerged. Therefore, existing health services were re-organised from curative-oriented medical care to a comprehensive preventive and promotional medical care. Changes in the approach of the medical personnel and others were also attempted through seminars, training programmes and refresher courses. From hospital-based programmes, health services were extended to the periphery of the plantations.

In spite of the initial response, there did exist a barrier between the employers and employees which stood in the way of a proper implementation of services. It soon became evident that long-lasting changes cannot be brought about in a community without their total involvement. It was also recognised that a demand for services should be created within the community, that there should be effective communication with the community and further that a large number of personnel was required within the community to maintain the frequency of contacts. Another aspect that surfaced was that the competence and positive attitudes of the CLWS staff alone were not sufficient to break the resistance of the community to changes as they were alien to the community.

It was in such an environment that the concept of the "Link Workers Scheme" was developed. A communication had to be established as also key contacts with people within the community who would take on the responsibility of initiating a dialogue with the families on health subjects vis-a-vis the services. The "contact personnel" had to be persons from the estate with whom

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the families were free; also, it had to be made clear that he or she should not perceive himself/herself as health personnel, as no curative role was envisaged.

Although the concept of "Link Workers" was developed in 1976, it was experimented with only in 1977. Two salient points that emerged at this stage were that a new cadre of leaders in the plantation community in addition to the trade union leaders, could not be created and that the link workers could not be paid, since they would no longer be agents of social change, but become an extended arm of the management and thus lose their credibility in the community.

Several estates experimented with link workers, with success. The ideas, views and information that came through the system helped the management in implementing their sanitation, housing, family welfare and various other programmes.

What should be the criteria in choosing link workers? Should they be men or women? How many families should one link worker look after? These are some of the questions the management is faced with. In answering them, some factors have to be borne in mind. The link worker in one colony cannot look after the families in another. If one link worker assumes responsibility for more than 20 or 25 families, he or she would not be in a position to effectively establish in communication or contact. A balanced ratio of men : women link workers is essential if all aspects of health, hygiene and medical care are to be covered. Most importantly, certain leadership qualities should be looked for in choosing link workers,

in addition to a strong sense of responsibility to and involvement in the community. In many estates, the workers themselves select the link workers and this practice has proved efficacious.

The role of the link worker should be to monitor the health of not more than 20 families. They should ensure that families attended the preventive health clinics by informing them of the time and place and highlighting the benefits of attending them; they should organise and supervise sanitation, ensure that latrines and drains are clean and report blockages, repairs, etc. to the appropriate authorities and get them attended to. Their main role is to educate their colleagues on health and hygiene and to take preventive measures to ensure optimum health.

Link workers should enumerate households. They should sensitize themselves to the problems in the family and also observe families in their own environment. Their duties should include reporting on births, deaths, marriages, illness, pregnancies, immunisation status, attendance of children at the creches, condition of latrines, garbage pits, water supply, drains, etc.

Meetings between the management, medical officers, para-medical staff, conductors and link workers, should be held once a month for effective, dynamic and continuous communication. At these meetings, link workers should report their observations and findings and the management should take note of repairs, etc. for follow-up action. The medical personnel should educate the link workers on

health problems like anaemia, worm infestation and on preventive and protective measures, like immunisation, importance of drinking boiled water, etc.

What started as an experiment is now an established and integral part of the CLWS. True to their name, the link workers serve as a link between the management and the workers and have motivated and animated the labourers in various spheres, such as family planning, immunisation, hygiene, nutrition, environmental cleanliness, attendance at ante-natal and post-natal clinics and creches, etc. Their influence is often subtle and intangible; very often, they programme and 'beam' their messages so that they work on the subconscious minds of the workers. A heartwarming feature of their 'modus operandi' is the "gossip sessions" of women workers after work in the evenings, where the topics discussed are health, nutrition, family planning, hygiene, etc.

In a typical "gossip session", a group of women are gathered together in the court-yard of a worker's quarters late in the afternoon sun, after work. Some of them are picking rice, others are sewing, while yet others are peeling vegetables. The conversation goes like this :

- What are you cooking for supper tonight?
- Only rice and curry.
- I see. Don't drain the rice - use just enough water. And why don't you curry with garlic? Use tomatoes instead of tamarind - they are more nutritious.

- Greens are also very nutritious - they are rich in calcium, phosphorous, vitamins A, B and C. And they are not expensive. In fact, I grew these greens in my kitchen-garden.
- Beet-roots and carrots are also very nutritious. I have planted some in my kitchen-garden.
- Can you give me some seedlings?
- Certainly.
- I am making mutton curry, as my expectant daughter is coming home this evening.
- Is this her first child?
- No, it is her second.
- Then, you should get her sterilized.
- They have already decided to do so.
- I am waiting for wages day - I have run out of money.
- You should budget your expenses.
- It is so difficult to run a household on Rs.300 per month.
- We can supplement our income by keeping bees, growing mushrooms, poultry, etc.
- If we limit our families, our expenses will be less.
- But how do we solve our immediate problems?
- We can take loans from the Co-operative Bank.

All through the above conversation, it is the link worker who has been skilfully steering the conversation along constructive and instructive lines.

It should be reiterated that the link workers' programme can only be successful with effective support from the management and the medical department. Besides, the link worker is not an alternative to the existing health-service, but an instrument for greater participation and utilisation of health services by the community and provides the much-needed feedback on the recipients' feelings and views.

X. COMMON ILLNESS

In spite of the best of preventive cure, illnesses are bound to occur, but it should be the endeavour to keep their incidence to the minimum in the overall interest of both management and workers. The common illnesses in plantations are :

- Diarrhoea
- Worm Infestation
- Scabies
- Vitamin 'A' deficiency
- Measles and
- Anaemia.

1. DIARRHOEA:

The frequent passage of watery stools which diarrhoea entails is caused by infection through ingestion and mostly affects children due to faulty dietetic habit and contamination. Vomitting, abdominal distension/pain and frequent passing of water stools with bile or mucus are the common symptoms.

Diarrhoea among infants and children can be serious, if neglected. Due to loss of body fluids, they become weak and lose the resistance power. If not treated properly and on time, the illness could even be fatal.

The main causes of diarrhoea are :-

- organism present in stale food, fish and meaty;
- organism present in contaminated water; food and vessels used for children's food etc.;
- virus infections;
- secondary infections like otitismedia, urinary tract infections;
- dietary/overfeeding, underfeeding and malnutrition;

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- worms; and
- food poisoning.

Due to frequent watery stools and the consequent loss of fluids in the body, diarrhoea could lead to :

- dehydration
- dryness of the tongue and mouth
- pale face
- sunken eyes
- loss of skin elasticity
- convulsion
- scanty urine

Those suffering from diarrhoea must be promptly sent to hospital. However, in respect of children, oral rehydration may be administered before they are seen by the doctor. This could take the form of a teaspoonful of sugar and a pinch of salt mixed in boiled but cooled water every time after the child passes stools. If diarrhoea is due to dietetic defect, it is important that the diet pattern is changed.

By way of preventive cure, the following measures are suggested:-

- education of the community on personal hygiene and environmental sanitation;
- education of the mother on feeding habits;
- drinking of protected water; drinking of boiled water especially by children is advocated;
- nutrition education; and
- prevention of flies, cockroaches, etc. contaminating food.

2. WORM INFESTATION:

Although worm infestation is very common on estates, little effort is taken to avoid its spread. Much time is taken by workers on this account to visit the hospital for attending to this infection caused by repeated exposure to the soil due to unhygienic sanitation and improper personal hygiene.

Children with worm ifestation vomit worms and pass worms in their stool. Abdominal pain, tiredness, diarrhoea and dysentry are other common symptoms. Flatulence, vague pains and indigestion also occur. People with worms often eat much without improving health and weight. Women generally become pale besides feeling weak and tired. They also suffer from palpitations after climbing a slope or even after walking due to aneamia.

While the most common are round worms and hook worms, other types include giardia, tape worms, hydatid, amoebiasis, whip worms, etc.

The round worm looks like an earth worm and is whitish in colour. When anyone having it defecates in the open, the eggs passed in the stool remain in the soil even after it dries. Children playing in the mud get the eggs lodged in their finger nails and if they eat food without washing hands, the eggs are ingested. It is also possible for the eggs to be deposited in the field and when vegetables are eaten without proper washing, the eggs enter the human stomach where they hatch into larvae which penetrate the walls of the intestine, enter the blood stream and lymphatics and reach the lungs. From the lungs, they

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come up to the throat and move back to the stomach to lay more eggs. The most common symptoms of round worm infestation are abdominal pain and distension. If the number of worms are large, there may be allergic reactions. When leaving the stomach, they release a toxin which produces reactions in the body and may cause obstruction and appendicitis. While the larvae passes to the lungs, the patient starts coughing (even blood) and wheezing and gets fever, sometimes showing signs of pneumonia. When the larvae enters the liver, it enlarges and signs of liver disfunction appear. There are also cases of worms coming out through the nose.

Hookworm is not visible to the naked eye. While defecating, the worm infested person passes eggs in his stool. Within 5 or 6 days, they hatch into larvae which survive in the soil for months and can crawl up blades of grass as high as three feet. The larvae penetrates the skin of those walking past and enters the body. Those walking barefoot in infected soil could also pick up the larvae which enters the lungs through blood vessels. From there, it goes to the throat and is swallowed back and reaches adulthood in the stomach. Itching begins at the site of entry into the skin and if the reaction area is scratched with dirty nails, infestation soon develops. In the stomach, the hookworm causes upper abdominal pain, whereas in the lungs, it can lead to bleeding and asthma. The main feature of the hookworm is that it sucks blood from the intestinal lining. The worm attaches itself to the intestine by biting into the lining with its teeth. It sucks between 0.16 to 0.34 cc. of blood each day. The lining gets inflamed and cannot perform its function of food absorption. Weakness, palpitation, fatigue, dyspepsia

and even mental and physical retardation can occur. In severe cases, death could result from heart failure.

One important step to prevent worm infestation is to ensure that children and adults do not defecate outside latrines. The practice for mothers sending children outside the house or to the drains to defecate should be stopped. So also that of mothers cleaning up stools in the house and throwing them into the nearby bushes; all stools, whether of children or adults, should be disposed of in a latrine. Secondly, everyone should wash their hands with soap and water before eating. Thirdly, vegetables should be washed well before cooking. Garbage and rubbish which form a good medium for eggs to hatch into larvae should not be littered around. It is important that worm infested persons obtain medical treatment.

3. SCABIES:

Scabies is especially common among children. The female parasite burrows into the epidermis of the skin where it breeds and causes the condition known as scabies or itch. The webs of the fingers are affected along with the rashes distributed all over the body.

Scabies is transmitted by close contact with an infected person. This is often due to sleeping in the same bed or by children playing with each other or nursing an infested person. Because of close contact, the disease tends to spread the family members. Scabies, therefore, becomes a familiar or household infestation. Sometimes, it may be acquired from contaminated clothes and bed linen.

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The disease initially affects the hand and wrist and thereafter the extensor surfaces of elbows. The axillae, buttocks, lower abdomen, feet and ankles, palms in infants are common sites of infestation. It also affects the breasts in women and the groin in men. More itching sensation at night is common. Once the infestation occurs due to the scratching, secondary infestation sets in causing pus formation and ulcers, requiring medication.

If one person has scabies, everyone in the family should be treated. However, the most essential element is personal cleanliness; daily bath and change of clothes are a must. All clothes should be boiled and washed.

4. VITAMIN 'A' DEFICIENCY: (Night blindness and xerosis)

This eye disease is most common in children between 2 and 5 years of age. It occurs due to inadequate intake or defective absorption of the Vitamin and could lead to blindness if not recognised and treated early.

The common Symptoms are :-

- night blindness or inability to see well in dim light.
- dryness of eyes, the white of the eyes loses its shine and begins to wrinkle and conjunctive appears muddy and wrinkled.
- patches of little gray bubbles or white frothy spot (biot's spot) appear on the outer aspect of one or both eyes.
- as the disease gets worse, the cornea also becomes dry and dull and may quickly grow soft and bulge; there is however, no pain.
- xerosis gets worse when a child is sick with other illness like diarrhoea, whooping cough or tuberculosis.

The best form of prevention and treatment is to breast feed the baby upto 2 years, if possible. After 6 months, the child should be fed on food rich in Vitamin 'A' such as dark green leafy vegetables and yellow or red fruits. Whole milk, eggs, liver and kidneys are also rich in Vitamin 'A'.

Vitamin 'A' concentration administered once in 6 months to children between 6 months to 6 years will prevent blindness.

5. MEASLES:

As an eruptive fever caused by a special virus, characterised by fever and later followed by rashes, measles spread rapidly in a community through droplet infection, droplet nuclei and direct contact. Articles recently contaminated with saliva or nasal discharges will also convey infection. An attack of measles during pregnancy may lead to abortion and premature delivery.

The course of the disease is divided into two stages - pre-eruptive and eruptive. The former stage lasts for 3 to 4 days with fever, coughing, sneezing, running of nose and redness of eyes. The eruptive stage is heralded by a skin rash wich is bright pink or red in colour. It is noted first on the face and neck and within 2 to 4 days, it spreads on the whole body and limbs. By 5th or 6th day, rashes begin to fade leaving a brownish discolouration which may be seen for a long period even after the disappearance of the rash.

Despite its relative mildness, measles is known to cause a number of serious complications such as -

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- respiratory tract infections like pneumonia and severe bronchitis,
- otitis media,
- encephalitis, mental retardation,
- behaviour changes and
- motor disturbances.

Apart from personal hygiene and environmental sanitation, immunisation against measles must be done at the age of 9 to 15 months.

6. ANAEMIA:

Anaemia or lack of blood in the body is a common feature among plantation workers. Among its causes are (a) hookworms, (b) frequent pregnancies and (c) imbalanced diet.

As observed earlier, hookworm infestation occurs because of indiscriminate defecation. When people walk barefoot in contaminated soil, the hookworm larvae pierces the skin and enters the body. It dodges in the stomach and sucks blood. The loss of blood from the stomach over a period of time leads to anaemia.

Frequent pregnancies are the commonest cause of anaemia among women. Many start their reproductive life with anaemia because of imbalances in their diet. Some menstruate heavily, leading to substantial loss of blood which could, over a period of time, cause anaemia. Women conceive shortly after marriage and conception places greater demands for iron to keep up the haemoglobin (Hb) level in blood. During delivery, blood loss reduce the Hb level and, if it is not replenished, the level is further

reduced after lactation. Before the woman is able to recover, she again becomes pregnant and conceives, trapping her in a vicious circle that ends in anaemia. It has been observed that 90 per cent of women become anaemic after three pregnancies.

The Indian diet is predominantly composed of Carbohydrates. Unless the body gets other constituents in proper quantities, it does not grow and develop normally. One of the commonest outcome of imbalanced diet is anaemia.

The symptoms of anaemia are :-

- the person becomes pale as a sheet;
- the patient is breathless and listless;
- the conjunctive is pale and the tongue smooth and pale, not pink in colour;
- children are irritable and cry often; and
- some patients have low grade fever.

The common complaints associated with anaemia are:-

- marked tiredness;
- easy fatigability;
- general weakness;
- dysponea on exertion;
- occasional fainting;
- light headache;
- palpitations;
- forgetfulness;
- sleeplessness;
- lack of concentration; and
- syncope.

The manner in which a anaemia affects workers may be noted. They remain irritable and get tired easily. Gradually, they lose appetite and suffer from palpitations. Easting less aggravates anaemia and make them more prone to other illnesses. Illness leads to absence from work which, in turn, results in loss of wages and food availability. Anaemic children remain sickly and keep crying. Women are unable to cope with house work. Pregnancies keep them indoors. Either they abort or when they deliver, the child will be anaemic, sickly and prone to death. Further pregnancies follow and along with it a worsening of anaemia.

That prevention is better than cure is highly applicable to anaemia. Rather than depending on curative measures, it is advisable to take steps to avoid getting into anaemic condition, since health services merely provide a temporary relief. Balanced diet, prevention of hookworm infection by ensuring good environmental hygiene, personal hygiene and the proper disposal of excreta prevent anaemia. Spacing of pregnancies and limiting children are essential pre-requisites for women to keep away from anaemia.

XI. DOCUMENTATION

One of the basic requirements for planning and evaluation of health and welfare programmes is documented information.

BASE-LINE INFORMATION

The information to be collected are :

1. Complete details of age and sex of all resident population as also those residing outside but availing of health services.

2. Crude birth rate - i.e. the number of births/ 1000 population (ANNEXURE - III).

3. Crude death rate - i.e. the number of deaths/ 1000 population (ANNEXURE - IV).

4. Infant mortality rate -

   a) Neo-natal deaths - 1st month of life/ 1000 live births.

   b) Infant deaths - 1 month to 1 year/ 1000 live births.

   The former helps to evaluate the maternal health programme, and the latter, the child care programme.

5. Toddler mortality - number of children who die between 1 and 5 years; this is a good indicator of the nutrition in the community.

6. Maternal mortality - number of mothers who die due to pregnancy and, thereafter, due to delivery complication.

7. Abortions - number of abortions per total pregnancies.

8. Still-birth rate - number of still births per total pregnancies.

9. Contraception rate - number of couples sterilised among the eligible couples in the community.

10. Absenteeism - While authorised absenteeism is mandatory, unauthorised absenteeism, particularly due to health factors, needs to be studied; this becomes a good index when the objective of the health service is to keep the workers at optimum production-level at all times, and by not having to take recourse to curative services when they reach zero production-level.

11. Nutritional status of children - number of women given sick-attendance wages for attending to sick children.

12. Morbidity and mortality in the community -

- commonly prevalent mortality
- frequency of occurance
- mandays lost due to illness
- mandays lost per disease
- opportunity cost
- cost per treatment of individual disease and number of people treated for it.

The procedure for collection of base-line information involves:

- preparation of a map of the estate indicating the colonies, lines, and housing units with creche, dispensary, hospital, primary school and water sources.

- enumeration of each household in the given format (ANNEXURE - V).

- analysis of the data.

It is important that the base-line data is collected on a time-scale by trained personnel. Creche attendants, field staff, health personnel, school teachers, etc. can

be trained and given detailed instructions on filling in the format. Link-workers can also be of assistance in this respect. The census operation should be updated every year.

The benefits of obtaining base-line information are:

- full particulars of the estate population are available;
- number of persons to be catered for in a particular activity can be identified;
- logistics of programmes can be planned and
- unauthorised persons using the estate services can be identified.

From the analysis of the data, the following household information could be extracted :

- population by age and sex; for this purpose, the international classification is used and repeated once in 10 years.

Age Group	No. of persons	
	Male	Female
0 - 4		
5 - 9		
10 - 14		
15 - 19		
20 - 24		
25 - 29		
30 - 34		
35 - 39		
40 - 44		
45 - 49		
50 - 54		
55 - 59		
60+		

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- number of people living in each house.
- number of children, male, female, under the age of 6.
- number of children, male, female, 6-11, attending/not attending school.
- number of eligible couples.
- number of illiterate adults in the age group 15-35.
- number of persons employed per household.
- additional income available in the household.
- educated, unemployed youth in the community.

From the base-line, a register should be extracted on eligible couples (ANNEXURE - VI). This represents couples in the reproductive age-group and covers female population in the age-group of 15-44. The register is a 'live' one and should list married women and those exposed to the risk of pregnancy. Newly married couples should also be registered. However, those leaving the estate or women who have crossed 45 years of age should be deleted from the register. Sterilised couples and those using different methods of contraception should be identified through circles in the serial number.

Based on the following criteria, the information available in the register may be used for selective intensive campaign in planning a family :

- those who are already contraceptors need not be contacted.
- those who have had no pregnancy for the past 5 years need not be contacted frequently.
- recently married couples need counselling on postponing the first child.

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- those who have not completed their family-size need counselling on spacing.
- where a woman has recently delivered and is not a contraceptor, motivation may be done after a time-lag of 5-6 months.
- where a woman has a 5-6 months old child and is not a contraceptor, she may be contacted immediately for counselling as she is exposed to the risk of pregnancy.

The Eligible Couple Register should be maintained at the dispensary where it is a feeder to a Group Hospital or it the only health centre for the estate. Where a hospital is the only health centre, it should be maintained there.

Information from the register can also be of help for child care programmes by quantifying the number of children who should be in the creche besides those who are to be immunised.

Records of the immunised children, as also the various preventive vaccines, inoculations and booster doses given should be maintained (ANNEXURE - VII). All children should be brought on the "Road to Health Card" (ANNEXURE - II) and a monthly weight register maintained and other aspects of their health monitored.

DOCUMENTATION AT HEALTH CENTRES:

Family File System - In a closed community like plantations where there is only marginal in and out migration, it is important to have a health profile of the entire family, with the history of all members recorded in a file which is

readily available for reference. Different colour cards are to be used for the permanent men and women workers, temporary men and women workers and their dependants (ANNEXURE - VIII).

Out-patient Register - An out-patient register (ANNEXURE - IX) should be maintained as the morbidity among them is a good indicator of the health of the community. The out-patient morbidity should be analysed daily as it provides a three-fold benefit :

- Where sickness benefit is given without admission to the hospitals, the OP morbidity will give an indication of the illness in the community and also of people who avail of sick benefit.

- During peak periods, manpower planning by estates can be made depending on the number of people who avail of sick leave.

- The morbidity analysis also helps in planning the health care programme; for example, if there are high diarrhoea and dysentry episodes, the opportunity cost of spending on water-supply could be determined.

GROUP HOSPITALS:

All group hospitals should maintain admission and discharge registers and case history sheets. The case sheets (ANNEXURE - X) should be so filed that they are easily accessible.

Operation Register - Both major and minor operations of the workers should be recorded with details specified in the attached specimen card (ANNEXURE - XI).

XII. STATUTORY BENEFITS

In the preceding chapters, we have dealt with the initiatives that management could take in promoting welfare activities. Essentially, these are supplementary measures and serve as adjuncts to what are required under statute and settlements. The legislations covering plantation labour welfare in India are of a two-fold nature - which is exclusively for the plantation sector, namely, the Plantations Labour Act, 1951 and which are of a wider coverage of all industrial workers, including those employed on plantations. In the latter category come statutes relating to maternity benefit, provident fund, gratuity, bonus, etc. Additionally, it has been customary for plantation managements to enter into bilateral and tripartite settlements on certain aspects which are not contemplated under legislation. These statutory and quasi-statutory benefits are summarised hereunder :

1. The Plantations Labour Act, 1951:

This is a comprehensive labour welfare legislation and stipulates elaborate provisions relating to health, welfare and social security benefits. Although it is a Central enactment, the administration is by the State Governments through Rules framed on the basis of a model provided by the Centre. It covers all plantations admeasuring 5 hectares or more and employing 15 or more persons and applies to workers drawing wages upto Rs.750/- per month. The Act provides, inter alia for the following benefits :

- free medical aid to the workers and their families;
- free housing as per the standards/specifications prescribed by the State Governments;

- wholesome drinking water;
- latrines and urinals of prescribed type;
- creche with wholesome refreshments for children of below 6 years of age;
- recreational facilities;
- educational facilities;
- protective clothing (blankets, umbrellas or rain coats);
- leave with wages at the rate of one day for every 20 days of work;
- sick leave at the rate of 14 days with 2/3rd of the wages;
- weekly day of rest in every period of seven days; and
- overtime payment at twice the rates of ordinary wages for work done in excess of the normal working hours.

2. The Maternity Benefit Act, 1961:

It applies to all plantations covered under the Plantations Labour Act, 1951, and provides for maternity leave with benefit for a period of upto 6 weeks immediately preceding the expected day of a worker's delivery and for 6 weeks immediately thereafter. The qualifying period is 160 days of work in the 12 months immediately preceding the the expected date of delivery. The benefit is payable at the average rate of wages earned during a period of 3 months immediately prior to the availing of the maternity leave. In the event of miscarriage, leave with wages for 6 weeks is payable.

3. The Employees' Provident Funds and Miscellaneous Provisions Act, 1952:

The Act is applicable to plantations in which 20 or more workers are employed. Those drawing wages upto Rs.2,500/- per month are covered. The following 3 schemes are in operation:-

(i) Employees' Provident Funds Scheme, 1952 - Both the employer and worker have to contribute 8 per cent of the worker's wages to the Provident Fund, which can be withdrawn by the worker at the time of superannuation or earlier under the prescribed circumstances. Advances from the Fund are also permitted for certain purposes like house construction, marriage expenses of the worker or dependants, etc.

(ii) The Employees' Family Pension Scheme, 1971 - An amount representing 1-1/6 per cent of the wages of a worker is diverted from the contribution of both the employer and worker to the Provident Fund, referred under (i) above, to a Family Pension Fund. From this Fund, on the death of an employee while in service, the family receives a monthly family pension ranging from Rs.60 to Rs.320/-.

(iii) The Employee's Deposit-Linked Insurance Scheme, 1976 - To the Deposit-Linked Insurance Fund, the employer contributes 0.5 per cent of the wages of a worker and the Central Government

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0.25 per cent. From the Fund, the dependants/ heirs of an employee who dies while in service are paid an amount equal to the average balance in the Provident Fund account of the employee during the last 3 years, subject to a maximum of Rs.10,000/-.

4. The Payment of Gratuity Act, 1972:

The Act is applicable to all plantations under the Plantations Labour Act. Employees drawing wages upto Rs.1,600/- per month are covered. On superannuation, death or disablement or termination of service of an employee, gratuity at the rate of 15 days' wages is payable for every year of continuous service, subject to a maximum of 20 months' wages. Except in the case of disablement or death, there is a qualifying service of 5 years of continuous service before an employee becomes eligible for gratuity.

5. The Payment of Bonus Act, 1965:

The Act is applicable to plantations wherein 20 or more persons are employed on any day during an accounting year. Employees drawing wages upto Rs.2,500/- per month are covered. However, for the purpose of bonus calculation, a maximum salary of Rs.1,600/- per month only is taken into account. Provision also exists for payment of annual bonus either based on the profits of the establishment or productivity, subject in both cases to a minimum of 8.33 per cent and a maximum of 20 per cent of an employee's annual earnings. The employee has to be employed in the establishment for not less than 30 working days in that year

to avail of this benefit. Payment of minimum bonus of 8.33 per cent is compulsory even if the establishment makes a loss in a particular year.

6. The Workmen's Compensation Act, 1923:

Workers employed on a plantation, otherwise than in a clerical capacity, without any wage limit and in cases where in the immediately preceding 12 months period 25 or more persons were employed, are covered. The Act provides for compensation in cases of employment injury. For temporary disablements resulting from the injury, the compensation payable is half monthly payments of an amount equal to 25 per cent of the monthly wages of the workman during the disablement period, or during a period of five years, whichever is shorter. For permanent disablement, the maximum compensation payable is Rs.24,000/- and for death, Rs.20,000/-.

7. The Industrial Employment (National and Festival Holidays) Act of the respective States:

Under these legislations, apart from the annual leave with wages under the Plantations Labour Act, workers are given national and festival holidays of 7 to 9 days in a year with full wages.

8. The Equal Remuneration Act, 1976:

Under this legislation, the differentiation in the wage rates payable to male and female workers has been done away with and they are to be paid equal wages for equal work or work of a similar nature.

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The main quasi-statutory benefits are :-

- annual leave travelling expense to registered home address and back; in some States, detention allowance is also paid;
- cattle keeping and grazing facilities;
- facilities for free collection of firewood;
- exgratia payment in cases of non-occupational chronic diseases;
- issue of free liquid tea/coffee at work spots;
- kitchen garden facilities and where land is available, provision for raising foodgrains;
- exgratia payment for promotion of family planning;
- uniform for certain categories of employees; and
- arrangements for issue of foodgrains in some areas on a no-profit, no-loss basis.

In addition to the above, the four Commodity Boards dealing with tea, coffee, rubber and cardamom have the following schemes to assist the plantation workers :-

- Educational Stipend Scheme, under which the Boards provide stipends towards tution fees/ hostel charges for dependants of plantation employees drawing monthly emoluments upto Rs.1,600/- per month.
- Capital Grants to schools and colleges for the construction of hostel buildings, extension of school buildings etc. in return for concessions to the wards of plantation workers.

- Capital grants to medical establishments to set up specialised medical treatment for T.B., Cancer, diseases of the eye, etc. and in return for reserving a certain number of beds to the plantation workers/wards and providing free treatment or at concessional rates.

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MATERNAL CARD

Month and year of Registration: Name of Estate: ..... Serial No.:_____

Name:_____ Check Roll No.:_____ Age:_____ Husband's Name:_____ Division:_____ Colony :

LMP E.D.D. Due date for Form 8:_____ Date of going on maternity leave:_____

Date of delivery:_____ Date of rejoining duty:_____ Religion:_____ Literacy:_____ Employment: _____

ANTE-NATAL:

Date	Size of uterus	Examination. (Presenting part / Fixed or not / FH)	Hb.	Weight	Blood pressure	Urine.	Bowels.	Oedema.	Breast.
1	2	3	4	5	6	7	8	9	10

Other symptoms.	Medicine given.	T.T.	Family Planning advice.
11	12	13	14

LMP: Last Menstrual period. E.D.D.: Expected date of Delivery. F.H. : Faetal Heart.

DELIVERIES: Date of delivery: Time: Type of delivery: Delivery notes: Place of delivery: Sex of the Child: Weight of the child:

POST-NATAL:-

Date	Condition of uterus.	Lochia	Breast	General condition.	Complaint.	Treatment.	Contraception.
1	2	3	4	5	6	7	8

DETAILED HISTORY

Age at Puberty: _____ General Examination:

Age at Marriage: _____

Total No.of pregnancies

No.of years married: _____ Live Births: _____ Systemic Examination:

Still Births: _____ Heart:

Abortions: _____ Lungs:

Total: _____

MH. Regular: Irregular: Amenorrhoea of lactation: _____

DETAILS OF OBS.HISTORY

Sl. No.	Type of delivery	Place of delivery	Age	Sex	Present health status of the child
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

ANNEXURE - II.

IMMUNISATION

	DATE				
	1	2	3	4	5
BCG					
Primary vaccination.					
Triple antigen					
2nd year Booster					
Pre-school Booster					
T.A.B.					
Polio.					
Pre-school Booster.					

IDENTIFICATION

Name of the Estate: _____ Div.___

Name of the child : _____

Date of Birth:_____ Sex:_____

Mother's Name: _____ P.F.No.:

Father's Name: _____

Employment:_____ House No.:

ORDER OF BIRTH

Sl. No.	Name	Age	Sex	State of Health
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

HEALTH

Date.	Problem.	Treatment.

WEIGHT IN KILOGRAMS
WEIGHT IN POUNDS
1ST YEAR
2ND YEAR
3RD YEAR
4TH YEAR
5TH YEAR
6TH YEAR
Ragi & Corgi
Iddli
Potato
Banana
Eggs
Khichari
Spinach
Green Vegetable
Groundnut
Milk
5
6
9
12
15
18 Months

ANNEXURE - III.

BIRTH REGISTER

PARTICULARS OF CHILD				
Sl. No.	Date of registration.	Date of birth	Sex	Place of birth
1	2	3	4	5

PARTICULARS OF FATHER			
Name	Literacy	Occupation	Religion
6	7	8	9

PARTICULARS OF MOTHER			
Name	Literacy	Occupation	Religion
10	11	12	13

Age of mother completed years at confinement.	Order of birth i.e. No.of live births including the birth registered.	Type of attendance at delivery.
14	15	16

Signature of Registrar.	Remarks.
17	18

ANNEXURE - IV.

DEATH REGISTER

Sl. No.	Date of registration.	Date of death	Name	Name of father/ husband.	Place of death.
1	2	3	4	5	6

Hours	AGE			Sex
	Days	Months	Years	
7	8	9	10	11

Marital status	Occupation.	Religion	Permanent residential address.	Cause of death whether medically certified or not
12	13	14	15	16

Kind of medical attention received if any.	Signature of Registrar.	Remarks.
17	18	19

ANNEXURE - V.

HOUSEHOLD SURVEY

Information collected by: Date:_____	Sl. No.	Name	C/R. No.	Relationship to the head of the household.	Age	Sex	Religion	Literacy	Employment.
	1	2	3	4	5	6	7	8	9
Name of estate Division Line & House No. Respondent. Mother tongue of family: Tamil ☐ Malayalam ☐ Any other ☐ Does the family have kitchen garden: Yes ☐ Area:_____ No ☐									

Contraception:-

Tubectomy ☐

Vasectomy ☐

Marital status.	Living with parents or outside.
10	11

Pill ☐

Condom ☐

I.U.D. ☐

ANNEXURE - VI.

ELIGIBLE COUPLE REGISTER

Sl. No.	Line No.	Name of husband/ name of wife.	Age		No.of children		Age of last living child	Time of last pregnancy.
			husband	wife.	Male	Female		
1	2	3	4	5	6	7	8	9

Contraception					
V	T	IUD	PILL	CONDOM	OTHERS
10	11	12	13	14	15

Name of children under six years.	Age	Sex	Remarks.
16	17	18	19

CHILD CARE REGISTER

Sl. No.	House No.	Name of Father/ Mother	Name of the child	Age	Sex
1	2	3	4	5	6

D.P.T.					POLIO					BCG	TAB			
I	II	III	IB	IIB.	I	II	III	IB	IIB		1	2	3	4
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

VIT 'A' CONCENTRATION												IRON & FOLIC ACID											
1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

Remarks
46

ANNEXURE - VIII.

FAMILY FILE - (1) HOSPITAL ATTENDANCE RECORD

Name : _____ Age:___ Sex: _____ Family File No.:_____

CR.NO.:_____ Marital Status: _____ Divi.:_____ Colony:___

JOB	ATTENDANCE IN HOSPITAL					

FAMILY FILE - (2) FAMILY HEALTH PROFILE

Name: _____ Age: _____ Sex: _____ FF.No.:____

CR.No.:_____ Relationship to Head: _____ Date of starting the Card: _____

Division: _____ Colony: _____

Past History:

Date	No. of visit.	Diagnosis.	Treatment	Remarks.

ANNEXURE - IX.

OUT-PATIENT REGISTER

Daily No.	Serial No.	Name	Age	Sex	Diagnosis	Treat-ment.	Remarks.
1	2	3	4	5	6	7	8

ANNEXURE - X.

CASE SHEET

In-Patient Number

Name :

Age :

Sex :

Address :

Complaints:

Past History:

Present History:

General Examination with Clinical findings:-

1) CVS - Cardio Vascular System
2) RS - Respiratory System
3) CNS - Central Nervous System
4) Per abdomen etc.

Investigations:

Treatment:

Date of discharge:

ANNEXURE - XI.

OPERATION REGISTER

Sl. No.	Name	Age	Sex	Diagnosis	Type of operation	Type of anaesthesia
1	2	3	4	5	6	7

Operation Notes	Name of Surgeon	Name of anaesthetist
8	9	10

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sspd.